



UNITED STATES PATENT AND TRADEMARK OFFICE

cl
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,301	12/19/2001	Maurice R. De Billot	17396/09015	8087

27530 7590 04/13/2007
NELSON MULLINS RILEY & SCARBOROUGH, LLP
1320 MAIN STREET, 17TH FLOOR
COLUMBIA, SC 29201

EXAMINER

COTTON, ABIGAIL MANDA

ART UNIT	PAPER NUMBER
----------	--------------

1617

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/026,301	Applicant(s) DE BILLOT ET AL.	
	Examiner Abigail M. Cotton	Art Unit 1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 103, 104, 106, 108-110, 112, 117, 134-148, 150 and 153-158 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 103, 104, 106, 108-110, 112, 117, 134-148, 150 and 153-158 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the amendment and remarks submitted on February 5, 2007. Claims 103-104, 106, 108-110, 112, 117, 134-148, 150 and 153-158 are pending in the application. As stated in the previous Office Action, the Examiner notes that Applicants have elected the species of agronomic plant that is soybean (glycine max), a fungicidal component that is silthiofam, an herbicidal component that is glyphosphate, and an inoculating fungi that is *Rhizobium spp.* However, in the interests of compact prosecution, the Examiner has examined the claims to their full extent in order to apply prior art and determine the enablement of the instant claims.

Applicant's arguments regarding the rejections of the claims have been fully considered but they are not persuasive. The following rejections have been required by Applicants amendments to the claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 103-104, 106, 108-110, 112-114, 116-118, 120, 122, 134-158 are rejected under 35 U.S.C. 112, first paragraph, for lacking enablement for the full scope of the claims. The specification is enabling for a method of increasing vigor and/or the yield of a non-transgenic soybean crop by treating seeds with a combination of the particular fungicide that is silthiopham and the particular inoculant that is *Bradyrhizobium* spp., the specification does not reasonably provide enablement for a method of increasing the vigor and/or the yield of a legume *in general*, including beans, soybeans, peas, alfalfa, etc, where the plant has had a transgenic event that renders it resistant to a herbicide *in general*, and the method includes providing a fungicide that has no significant activity against fungal plant pathogens that are associated with that plant, along with the herbicide via foliar application.

The instant specification fails to provide information that would allow the skilled artisan to fully practice the instant invention without ***undue experimentation***. Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation. Citing *Ex parte Forman*, 230 USPQ 546 (BdApl 1986) at 547 the court recited eight factors:

(1) the nature of the invention; (2) the state of the prior art; (3) the relative skill of those in the art; (4) the predictability or unpredictability of the art; (5) the breadth of the claims;

Art Unit: 1617

(6) the amount of direction or guidance presented; (7) the presence or absence of working examples; and (8) the quantity of experimentation necessary.

1. The nature of the invention: The instant invention pertains to method of increasing vigor and/or the yield of any legume that has had a transgenic even to confer resistance to any herbicide, without limitation, by providing to the plant or propagation material thereof the herbicide along with any of the numerous and diverse fungicide compounds as recited in the claim that also have the functional limitation of not being active against the pathogens of that particular plant.

2. The state of the prior art: The state of the art regarding the action of fungicides for enhancing plant growth in plants afflicted by fungi is well developed. (See for Example Seed Science, Proceedings of the International Seed Testing Association, 1981, vol. 9, pages 697-705, article by J.B. Sinclair entitled "Fungicide Sprays for the Control of Seedborne Pathogens of Rice, Soybean and Wheat.") For example it is known that fungicide sprays can be useful for controlling seedborne pathogens that afflict soybeans, as well as rice and wheat (see Summary in particular.) However, the stat of the art regarding the action of fungicides for enhancing plant growth in plants that are not afflicted by the fungi that the fungicides are known to control is not well developed. For example, the Sinclair reference teaches applying various fungicides according to the type of plant (wheat, rice, soybean) and the type of fungus afflicting the

plant (see pages 699-704, in particular), and also teaches that some fungicides are also capable of controlling some of the bacteria in such plants (see Summary, in particular), but the state of the art does not indicate how fungicides could be selected to treat plants that do not harbor the fungi the fungicides are known to be effective against.

3. The predictability of the art, and the breadth of the claims: Note that the herbicidal/fungicidal art is unpredictable, requiring each embodiment to be individually assessed for physiological activity. *In re Fisher*, 166 USPQ 198 indicates that the more unpredictable an area is, the more specific enablement is necessary in order to satisfy the statute.

As fungicides are typically selected on the basis of the type of plant being treated and the type of fungi pathogen that is known to afflict the plant, as shown by the Sinclair reference, it is considered that the selection of suitable fungicides that would provide enhancing effects in the absence of afflicting fungi, as well as the selection of transgenic plants that could thus be treated, and the selection of combinations of herbicides that are suitable for use therewith, is considered to be highly unpredictable.

It is furthermore noted that the recitation that the fungicide "has no significant activity against fungal plant pathogens for such agronomic plant" is considered to be functional language. Functional language at the point of novelty, as herein employed by Applicants, is admonished in *University of California v. Eli Lilly and Co.* 43 USPQ2d

1398 (CAFC, 1997) at 1406: stating this usage does “little more than outline the goal appellants hope the recited invention achieves and the problems the invention will hopefully ameliorate.” The CAFC further clearly states that “[A] written description of an invention involving a chemical genus, like a description of a chemical species, requires a precise definition, such as by structure, formula, [or] chemical name, of the claimed subject matter sufficient to distinguish it from other materials” at 1405 (emphasis added), and that “It does not define any structural features commonly possessed by members of the genus that distinguish from others. One skilled in the art therefore cannot, as one can do with a fully described genus, visualize or recognize the identity of the members of the genus. A definition by function, as we have previously indicated, does not suffice to define the genus ...” at 1406 (emphasis added.) Thus, claims employing functional language at the exact point of novelty, such as Applicants', neither provide those elements required to practice the inventions, nor “inform the public during the life of the patent of the limited monopoly asserted” (*General Electric Company v. Wabash Appliance Corporation et al.* 37 USPQ at 468 (US Supreme Court 1938).)

4. The quantity of guidance provided and presence or absence of working examples: The specification does not provide adequate guidance as to how one of ordinary skill in the art can reasonably select plant/fungicide combinations where the plant has pathogens that cannot be treated by the fungicide without under experimentation, and instead merely lists a number of different crops and numerous and diverse different fungicides that could be tried. With regards to working examples, the

Art Unit: 1617

specification provides examples that show that improved vigor and/or yield is achieved the particular legume that is a soybean plant when the particular fungicide that is silthiopham is combined with the additive mollyflo and an inoculant that is Bradyrhizobium spp (see Table 1 and Table 2.) In particular, for the treatment of soybean plants, the particular combination of silthiopham + mollyflo + inoculant provides improved growth and/or vigor over treatment with just silthiopham or with just mollyflo and the inoculant. Applicants have also shown that increased yield is achieved for soybeans by treating with silthiopham and the inoculant that is Bradyrhizobium spp. (see Table 5, in particular). Thus, Applicants show that a combination of the particular fungicide that is silthiopham with the plant that is soybean (not transgenic soybean) and provided with the inoculant Bradyrhizobium spp, can give enhanced growth. However, the Examiner notes that the specification does not provide any other working examples of plants other than soybeans and/or other fungicide combinations that may be suitable, and also does not provide examples of the efficacy with transgenic plants having herbicidal resistance or the use of such herbicide. The Examiner furthermore notes that the examples show improved results only for those seeds treated with both the inoculant and the silthiopham, with the seeds that have been treated only with silthiopham faring more poorly. Thus, the evidence in the examples is not commensurate in **scope** with the claimed invention and does not demonstrate criticality of the types of transgenic plants, fungicides and/or herbicides in the claimed method. The Examples do not provide further guidance as to how one of ordinary skill in the art could select a fungicide/transgenic plant/herbicide combination

where the fungicide has no significant fungal activity, yet improves the plant vigor and/or yield in combination with the herbicide.

5. Quantity of Experimentation Necessary

In order to successfully carry out the invention, a person of ordinary skill in the art would need to first select a transgenic plant/herbicide combination from among the numerous and diverse plants and herbicides that are encompassed by the claims. After making this selection, the person would need to test the transgenic plant to determine what fungal pathogens it is host to and/or affected by, which could involve exhaustive testing for the many different types of fungal pathogens, known and unknown, that are capable of infecting various plants. After determining the pathogens that afflict the particular plant, one of ordinary skill would need to determine which of the numerous and diverse fungicides encompassed by the claim do not have activity against the fungal plant pathogens, which would similarly involving even more testing and assays against each of the pathogens that have been found to afflict the selected transgenic plant.

Once a suitable fungicide has been identified, the fungicide would need to be tested for growth enhancement by treating the plant with various selected parameters, including a selected dosing rate, a desired inoculum, etc, and observing the plant growth. Alternatively, a fungicide could first be selected and extensively tested to

Art Unit: 1617

determine which pathogens it active against, after which an exhaustive search would need to be performed to find a transgenic plant/herbicide combination having the pathogens the fungicide is not active against. If improved vigor and/or yield was not achieved in the plants as grown, testing would have to be continued by either changing the plant growth conditions, by selecting a new fungicide, or by selecting a new transgenic plant/herbicide combination, and repeating the steps as set forth above. Such lengthy and arduous testing is deemed to require unnecessary and undue experimentation on the part of one of ordinary skill in the art.

Genentech, 108 F.3d at 1366, states that “a patent is not a hunting license. It is not a reward for a search, but compensation for its successful conclusion” and “[p]atent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable.”

Therefore, in view of the Wands factors and *In re Fisher* (CCPA 1970) discussed above, to practice the claimed invention herein, a person of ordinary skill in the art would have to engage in undue experimentation to test all of the transgenic legumes/herbicides/fungicides encompassed by the instant claims, with no assurance of success.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 103-104, 106, 109-110, 112 and 134-148, 150 and 153-158 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article entitled "Isolation of *Gaeumannomyces Graminis* var. *graminis* from Soybeans in the Midwest" by Roy et al, in Plant Disease, 1982, Vol. 66 No. 9, pages 822-825 in view of either U.S. Patent No. 5,486,621 to Phillion et al, issued January 23, 1996 (hereinafter Phillion et al. '621) or U.S. Patent No. 5,994,270 to Phillion et al, issued November 30, 1999 (hereinafter Phillion et al. '270) and further in view of U.S. Patent No. 5,914,451 to Martinell et al, issued June 22, 1999 and U.S. Patent No. 6,277,847 to Theodoridis et al, issued August 21, 2001.

Roy et al. teaches the isolation of *Gaeumannomyces graminis* var. *graminis* from soybeans, which is the cause of take-all disease in wheat and other cereals (see abstract in particular.) Roy et al. teaches that the *G. graminis* fungi isolated from the soybean was capable of infecting wheat, with discolored roots, necroses and vascular occlusion adjacent to infected cortical tissue that is typical of take-all disease, whereas

Art Unit: 1617

disease symptoms were not apparent on the leaves, stems or roots of the infected soybean plants (see page 824, right hand column, third full paragraph, in particular.) Roy et al. teaches that the discovery of *G. graminis* infection in soybean plants is significant, because take-all disease is known to be frequently severe in wheat grown after soybeans, and the planting of wheat following other legumes has been reported to increase the incidence of take-all (see page 825, middle column, first full paragraph, in particular.) Roy et al. teaches that their study indicates that there is reason to suspect that the inoculum of *G. graminis* may increase through its survival on soybean tissues (see page 825, middle column, first full paragraph, in particular.) Thus, Roy et al. teaches that infection of soybean with *G. graminis* may be at least partially responsible for the heightened occurrence of take-all disease in subsequently planted wheat or cereal crops.

Roy et al. does not specifically teach providing the fungicides, herbicides or transgenic event as claimed for the treatment of the soybean.

The Phillion et al. references ('621 and '270) teach fungicides for the control of take-all disease in plants (see abstracts, in particular.) In particular, the references teach that the fungicides are effective against the soil-borne fungus *Gaeumannomyces graminis* (see abstracts, in particular.) The fungicides taught therein meet the limitations of the fungicide corresponding to the formula as recited in claim 103 (see abstracts, in particular.)

Accordingly, it is considered that one of ordinary skill in the art at the time the invention was made would have found it obvious to treat the soybean plants of Roy et al. with the fungicides as taught by the Phillion et al. references, because Roy et al. teaches that the *G. graminis* fungus infecting the soybean can be transmitted to subsequently plant wheat, which causes devastating take-all disease in the wheat, and the Phillion et al. references teach fungicides that are effective against *G. graminis*. Thus, one of ordinary skill in the art would have found it obvious to treat the soybeans with the fungicides that are effective against *G. graminis*, with the expectation of reducing the threat of the *G. graminis* to subsequently planted wheat or other cereal crops.

Roy et al. and the Phillion et al. references do not specifically teach applying an herbicide to the soybean or soybeans having had a transgenic event providing the plant with resistant to a herbicide, as recited by claim 103.

Martinell et al. teaches that it is known to transgenically modify soybean plants to render them glyphosphate tolerant, such that glyphosphates can be applied to the soybean plants as an herbicide without adversely affecting the plants (see abstract and column 3, lines 1-45, in particular.)

Accordingly, it is considered that one of ordinary skill in the art at the time the invention was made would have found it obvious to provide the transgenic soybean and herbicide of Martinell et al. in the method of Roy et al. and the Phillion et al. references, because Roy et al. and the Phillion et al. references teach a method of growing soybean crops, while Martinell et al. teaches that improved transgenic soybeans can be provided with enhanced resistance to the herbicide glyphosphate, such that improved yields of the soybean can be obtained. Accordingly, it is considered that one of ordinary skill in the art at the time the invention was made would have found it obvious to provide the transgenic soybean and glyphosphate herbicide of Martinell et al. in the method of Roy et al. and Phillion et al, with the expectation of improving the yield of the soybean crop.

Roy et al, the Phillion et al. references and Martinell et al. do not specifically teach foliar application of the herbicide.

Theodoridis et al. teaches that it is known to apply herbicide-containing formulas to the foliage of plants (see column 12, lines 1-5, in particular.)

Accordingly, it is considered that one of ordinary skill in the art at the time the invention was made would have found it obvious to apply herbicides to foliage, as taught by Theodoridis et al, in the methods of Roy et al, the Phillion et al. references, and Martinell et al, because Roy et al, the Phillion et al. references, and Martinell et al. teach the application of herbicides to soybean, and Theodoridis teaches that an

Art Unit: 1617

accepted means of applying herbicides is to the foliage of the plant. Thus, one of ordinary skill in the art would have found it obvious to applying the herbicide to the foliage in the method of Roy et al, the Phillion et al. references, and Martinell et al, with the expectation of increasing the yield of the soybean crop.

Accordingly, claim 103 is obvious over the teachings of Roy et al, the Phillion et al. references, Martinell et al. and Theodoridis et al.

Regarding the recitation that the "fungicide has no significant activity against fungal plant pathogens for such agronomic plant" as in claim 103, it is noted that as the combined teachings of references renders obvious the use of the fungicide as claimed, the property of such a claimed fungicide will also be rendered obvious by the prior art teachings, since the properties, namely the activity against fungal plant pathogens, are inseparable from its composition. Therefore, if the prior art teaches the composition or renders the composition obvious, then the properties are also taught or rendered obvious by the prior art. In re Spada, 911 F.2d 705, 709, 15 USPQ 1655, 1658 (Fed. Cir. 1990.) See MPEP 2112.01. The burden is shifted to Applicant to show that the prior art product does not possess or render obvious the same properties as that recited in the claim.

Regarding the recitation in claim 103 that the methods are for "increasing the vigor and/or the yield of an agronomic plant" as recited in the claim, it is noted that as

Art Unit: 1617

the references render obvious providing transgenic soybean with improved resistance to the glyphosphate herbicide, and the use of the glyphosphate herbicide to improve soybean yield, it is considered that the method as taught by the references necessarily also results in increasing the vigor and/or the yield of the soybean plant.

Regarding claims 104 and 110, it is noted that Martinell et al. teaches providing transgenic soybeans with resistance to the herbicide glyphosphate, as recited in the claim. Regarding claims 106 and 112, Phillion et al. '621 teaches providing the silthiofam fungicide as claimed (see abstract, in particular.) Regarding claim 109, Theodoridis et al. teaches that herbicides can be suitably applied to foliage, as discussed above, and further teaches that such compositions applied to foliage can be formulated with fungicides (see column 12, lines 64-68, in particular.) Accordingly, it is considered that it would be obvious to one of ordinary skill in the art to apply the fungicide and herbicide as claimed foliarly, with the expectation of success in improving the growth and/or yield of the soybean plants.

Regarding claims 134-148 and 150, the Phillion et al. references teach providing fungicides that meet the structural limitations of the claims (see abstracts, in particular.) Regarding claims 153-155, the references teach treating soybean and even transgenic soybean, as has been discussed above. Regarding claims 156-158, it is noted that the Phillion et al. references teach that the fungicide can be provided on seed at rates of from 0.01 to 50 g per kg of seed (see column 7, lines 45-55 of Phillion et al. '270, in

Art Unit: 1617

particular), and 25 g per 100 kg of seed (see column 13, lines 29-40 of Phillion et al. '621, in particular.) Furthermore, it is considered that one of ordinary skill in the art at the time the invention was made would have found it obvious to vary and/or optimize the amount of the composition provided on the seed, according to the guidance provided by the references, to provide a composition having desired fungicidal properties. It is noted that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955.)

Claims 108 and 117 are rejected under 35 U.S.C. 103(a) as being unpatentable over the article entitled "Isolation of *Gaeumannomyces Graminis* var. *graminis* from Soybeans in the Midwest" by Roy et al, in *Plant Disease*, 1982, Vol. 66 No. 9, pages 822-825 in view of either U.S. Patent No. 5,486,621 to Phillion et al, issued January 23, 1996 (hereinafter Phillion et al. '621) or U.S. Patent No. 5,994,270 to Phillion et al, issued November 30, 1999 (hereinafter Phillion et al. '270) and further in view of U.S. Patent No. 5,914,451 to Martinell et al, issued June 22, 1999 and U.S. Patent No. 6,277,847 to Theodoridis et al, issued August 21, 2001, as applied to claims 103-104, 106, 109-110, 112 and 134-148, 150 and 153-158 above, and further in view of U.S. Patent No. 4,136,486 to Franklin, Jr. et al, issued January 30, 1979.

The Roy et al., Phillion et al, Martinell et al. and Theodoris et al. references are applied as discussed above, and render obvious the instantly claimed methods

Art Unit: 1617

comprising applying a fungicide and a herbicide to a agronomic plant having had a transgenic event, namely soybean plant.

The references do not specifically teach the step of treating the seed of the plant with one of the inoculants as recited in claims 108 and 117.

Frank, Jr. et al. teaches that the surfaces of legume seeds can be treated with symbiotic nitrogen fixing bacteria to improved plant growth (see abstract, in particular.) Frank, Jr. et al. teaches that suitable symbiotic bacteria include *Rhizobium japonicum* or *Rhizobium* sp. of the cowpea group (see column 3, lines 30-55, in particular), and that the legumes so treated can include soybean seeds, and even provides examples of such treatment (see Example I, in particular.)

Accordingly, it is considered that one of ordinary skill in the art at the time the invention was made would have found it obvious to provide the inoculum of Frank, Jr. et al. in the method of Roy et al., the Phillion et al. references, Martinell et al. and Theodoris et al, because these references teach growing soybean agronomic crops, and Frank, Jr. et al. teaches that the growth of soybean plants can be improved by treating the seeds with the bacteria inoculums. Thus, one of ordinary skill in the art would have found it obvious to provide the bacterial inoculums in the method of Roy et al., the Phillion et al. references, Martinell et al. and Theodoris et al, with the expectation of success in achieving improved growth of the soybean plants.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 103-104, 106, 108-110, 112, 117, 134-148, 150, and 153-158 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 111-113, 115-117 and 122-125 of copending Application No. 11/138,965 as published in U.S. Patent Application Publication No. 2005/0233905. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims both recite increasing the vigor and/or yield of a plant that has had a transgenic event by applying an herbicide and a fungicide,

Art Unit: 1617

where the set of fungicide compounds as claimed in the instant application overlaps with those recited in the conflicting published application. Accordingly, it is considered that the overlapping fungicide compounds render the instant claims obvious over the methods recited in the conflicting application. Accordingly, claims 103-104, 106, 108-110, 112, 117, 134-148, 150, and 153-158 are not patentably distinct over claims 111-113, 115-117 and 122-125 of copending Application No. 11/138,965.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments filed February 5, 2007 have been fully considered but they are not persuasive.

In particular, regarding the rejection of the claims under 35 U.S.C. 112, first paragraph, as lacking enablement for the entire scope of the claims, Applicants argue that the claims as amended are in fact fully enabled, as one of ordinary skill in the art would be able to carry out the claimed method without undue experimentation. In particular, Applicants argue that it would not require undue experimentation to carry out the claimed method to increase the vigor and/or yield of an agronomic plant that is a

Art Unit: 1617

legume by treating with a fungicide having the chemical formula as recited in amended claim 103.

The Examiner respectfully disagrees. In particular, the Examiner notes that the claims even as amended encompass methods involving a number of different plants, such as beans, soybeans, peas and alfalfa, and a number of different and varying fungicides having different chemical formulas that would not be expected to have the same chemical/biochemical activity or yield the same plant treatment results. The claims also encompass methods with those legume plants having any transgenic event that renders it resistant to a herbicide *in general*, as discussed above. While Applicants are clearly enabled for the treatment of a non-transgenic legume that is soybean with the particular fungicide that is silthiofam and the inoculant that is *Bradyrhizobium* spp, Applicants have not shown or provided evidence to demonstrate how one of ordinary skill in the art could expect the various other fungicide compounds encompassed by the claims to have the same vigor-enhancing properties of silthiofam, or how legumes other than soybeans could be expected to show the same vigor-enhancing benefits when treated by silthiofam. Accordingly, it is considered that one of ordinary skill in the art would have to undergo undue experimentation to test all legume plants with all of the numerous and diverse different compounds encompassed by the formula of claim 103, and in combination with various different transgenic events and herbicides, to find those combinations that yield improved vigor and/or yield, with no reasonable expectation of success.

Applicants further cite the Declaration submitted on February 5, 2007 and signed by Ernest F. Sanders (hereinafter "Sanders Declaration"), showing silthiofam testing data on soybean crops, as evidence that the claims are fully enabled by the specification. It is noted that the claims are required to be enabled by the specification as originally filed. The Sanders Declaration is signed June 16, 2004, and thus presents data obtained at least 2 and 1/2 years after the filing date of the instant application. Accordingly, the testing data described in the Sanders Declaration cannot be used to show enablement of the instantly claimed methods at the time of filing of the invention. It is furthermore noted that the testing from the Sanders Declaration is limited to the application of the specific fungicide that is silthiofam to the particular legume that is soybean, without specifying whether the soybean is transgenic or non-transgenic, and with the particular inoculant that is *Rhizobium*, and thus suffers from the same deficiencies as the working examples provided in the specification.

Regarding the rejections of the claims over the prior art, Applicants argue that the combination of Roy et al. and Phillion et al. does not render obvious the application of the fungicides as claimed to soybean plants. In particular, Applicants argue that Roy et al. does not even teach that *G. graminis* fungus infecting the soybean can be transmitted to subsequently planted wheat, and recite as evidence the fact that Roy et al. teaches that they have not isolated the same lobed *G. graminis* strain that they isolated from soybeans from field-grown wheat. The Examiner respectfully disagrees.

Art Unit: 1617

As discussed above, Roy et al. clearly teaches that *G. graminis* fungi isolated from the soybean was capable of infecting wheat, even though disease symptoms were not apparent on the infected soybean plants (see page 824, right hand column, third full paragraph, in particular), and Roy et al. emphasizes that the discovery of *G. graminis* infection in soybean plants is significant, because take-all disease is known to be frequently severe in wheat grown after soybeans, and the planting of wheat following other legumes has been reported to increase the incidence of take-all (see page 825, middle column, first full paragraph, in particular.) Roy et al. teaches that their study indicates that there is reason to suspect that the inoculum of *G. graminis* may increase through its survival on soybean tissues (see page 825, middle column, first full paragraph, in particular), and thus clearly teaches that the infection of soybean with *G. graminis* may be at least partially responsible for the heightened occurrence of take-all disease in subsequently planted wheat or cereal crop.

Accordingly, in view of the entirety of Roy et al's teachings, it is considered that Roy et al. is merely disclosing that the specific strain having the specific characteristics found to be expressed in soybean have either not yet been found in wheat, or that the specific lobed characteristic is for some reason not expressed in wheat, and not that the particular strain of *G. graminis* is not capable of infection of wheat, as asserted by Applicants. Accordingly, it is considered that one of ordinary skill in the art would have found it obvious to treat the soybeans taught by Roy et al. with a compound known to reduce *G. graminis* infection in plants, such as those taught by Phillion et al, with the

Art Unit: 1617

expectation of reducing the likelihood of infection of a subsequently planted wheat crop with the devastating take-all disease.

Applicants further argue that it would not have been obvious to apply the fungicide of Phillion et al. to treat the soybeans of Roy et al. that are infected with the fungus that causes take-all disease, because the fungicide is expensive and the fungus has otherwise no deleterious effect on the soybean crop. The Examiner respectfully disagrees. It is noted that Roy et al. teaches that take-all disease is frequently severe on early seeded wheat grown after soybeans (see page 825, middle column, in particular.) Accordingly, as Roy et al. teaches that wheat planted after infected soybean can be severely affected by take-all disease (with the very name "take-all" alone indicating the severity of the disease), it is considered that one of ordinary skill in the art would have found it obvious to seek out any means of eradicating the disease, such as by treating afflicted soybean before such plants can transmit to subsequently planted wheat crops, with the expectation of lessening the damage done by the disease.

Conclusion

No claims are allowed.

The prior art made of record and not relied upon that is considered pertinent to applicant's disclosure is cited in the accompanying PTO-892 form.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abigail M. Cotton whose telephone number is (571) 272-8779. The examiner can normally be reached on 9:30-6:00, M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreenivasan Padmanabhan can be reached on (571) 272-0629. The fax

Art Unit: 1617

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMC



R. ADMANATHAN
SUPERVISOR PATENT EXAMINER